AMENDMENTS TO THE CLAIMS

1. (currently amended) An isolated and purified poly(ADP-ribose) polymerase (PARP) homolog comprising ~~consisting of~~ human PARP2 (SEQ ID NO: 2) ~~and~~ or a functional ~~equivalents~~ equivalent thereof which ~~are~~ is at least 85% homologous thereto, exhibits poly(ADP-ribose)-synthesizing activity, and ~~have~~ has an amino acid sequence which

a) has a functional NAD^+ binding domain comprising the sequence motif

$PX_n(S/T)GX_3GKGIYFA$ (SEQ ID NO:11)

in which n is an integral value from 1 to 5, and the X radicals are, independently of one another, any amino acid;

and

b) lacks a zinc finger sequence motif of the general formula

$CX_2CX_mHX_2C$ (SEQ ID NO:30)

in which

m is an integral value of 28 or 30, and the X radicals are, independently of one another, any amino acid.

2. (currently amended) ~~A functional equivalent of a~~ The PARP homolog as claimed in claim 1, wherein the functional NAD^+ binding domain comprises one of the following general sequence motifs:

$(S/T)XGLR(I/V)XPX_n(S/T)GX_3GKGIYFA$ (SEQ ID NO:12) or

$LLWHG(S/T)X_7IL(S/T)XGLR(I/V)XPX_n(S/T)GX_3GKGIYFAX_3S$ KSAXY (SEQ ID NO:13)

in which

n is an integral value from 1 to 5, and the X radicals are, independently of one another, any amino acid.

3. (currently amended) ~~A functional equivalent of a~~ The PARP homolog as claimed in

claim 1, comprising at least another one of the following part-sequence motifs:

$LX_9NX_2YX_2QLLX(D/E)X_{10/11}WGRVG$ (SEQ ID NO: 15),
$AX_3FXKX_4KTXNXWX_5FX_3PXK$ (SEQ ID NO:16),
$QXL(I/L)X_2IX_9MX_{10}PLGKLX_3QIX_6L$ (SEQ ID NO:17),
FYTXIPHXFGX$_3$PP (SEQ ID NO:18); and
$KX_3LX_2LXDIEXAX_2L$ (SEQ ID NO:19),

in which the X radicals are, independently of one another, any amino acid.

4-32 (canceled)